The Bulletins are published weekly throughout the school year (thirty issues) to aid teachers and students in keeping abreast of geography behind current news events.

GEOGRAPHIC SCHOOL BULLETINS

of

The National Geographic Society

WASHINGTON 6, D. C.

The National Geographic Society is a non-profit educational and scientific Society established for the increase of geographic knowledge and its popular diffusion.

VOLUME XXV

May 12, 1947

NUMBER 29

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E. A. HOPPE—PIX

AN ANCIENT TELEPHONE RESTS ON A STILL MORE ANCIENT WINDOW SILL IN KANO, NORTHERN NIGERIA'S "ETERNAL" CITY OF MUD (page 5)

Sicilians Now Enjoy Local Independence

ELECTION of a parliament in Sicily brings complete control of local affairs to the sunny island at the toe of the Italian boot. Rome will continue to govern in national matters.

More than 4,000,000 Sicilians, working hard and living simply, wrest a scant living from the earth on the Vermont-size triangle of volcanic land. Vineyards, lemon and orange orchards, and olive and almond groves demand their close personal care. The sea provides a food staple and furnishes a much-followed trade (illustration, page 4).

Few Railroads, Roads, Factories

Except in the lava ash of the level Catania Plain, orchards and truck patches have largely replaced the grainfields (illustration, page 2) that once made Sicily a great granary. Sulphur carved from the south-central hills, long a Sicilian world monopoly, must now compete with that from Texas, Louisiana, and other parts of the world.

Export income is produced almost entirely from the raw products of the soil, manufactures being limited to such things as macaroni from wheat, wine from grapes, and oil from olives. Railroad mileage on Sicily is small and automobile highway mileage even less.

Largest island of the Mediterranean, Sicily almost corks the sea at its central bottleneck. Messina, its northeast port, lies two ferryboat miles from the Italian mainland. Marsala, its western haven, is 90 miles from Africa's Cape Bon. Mussolini called Sicily the geographical center of his Fascist empire.

Palermo, the capital and largest city, has often been captured in battle. Down the centuries, a parade of armies has taken advantage of Sicily's strategic position to make historic advances. Just as Carthaginians, Saracens, and others used this broken land bridge to step from Africa to Europe, the Allies landed on Sicilian shores on July 10, 1943.

Farmers Gamble on Etna's Temper

Using paratroops and the biggest invasion armada in history up to that time, they met little resistance from Sicilians. The port of Messina was bombed to a shambles as German resistance stiffened temporarily on the Mount Etna line in the island's northeast corner.

In this same Mount Etna corner, nature's violence relentlessly recurs. Rising from a broad base to 10,741 feet, the volcano dominates the whole Sicilian landscape. Orchardists and vineyardists gamble on its temper and grow fruit in the rich lava soil far up its lower slopes.

Always fuming, Etna was briefly violent early in 1947. It caused its most recent big damage in 1928. Lava flow and attendant earthquakes have repeatedly wrought destruction on Catania and neighboring towns within recorded history. An earthquake in 1908 laid Messina low in 35 seconds.

Early in the present century, the three principal Sicilian exports to the United States were sulphur, wine, and Sicilians. American Gulf-Coast

ENTERED AS SECOND-CLASS MATTER APRIL 27, 1943, POST OFFICE, WASHINGTON, D. C., UNDER ACT OF MARCH 3, 1879.
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© ANTHONY STEWART

THE CATANIA PLAIN, WITH LEVEL FIELDS LIKE THIS, GAVE SICILY THE DISTINCTION OF BEING THE "GRANARY OF THE ANCIENT WORLD"

Toadstool-shaped loads of wheat bundles make a top-heavy burden for the oxen to pull. Not far from this flatness rises Mt. Etna, Europe's highest volcano. Lava ash turned into soil has made a fertile base for Sicilian crops (page 3) since Greek colonists settled the Mediterranean island 26 centuries ago.

Africa's Nigeria a Land of Many Languages

NIGERIA'S legislative council, recently established under the new constitution, represents possibly the most polyglot people in the world. The 21,000,000 Nigerians, living in an area on Africa's mid-Atlantic coast ten times the size of Indiana, have developed literally hundreds of dialects.

Lack of contact between tribes accounted for the diversity of tongues. There are many tribes, often distinguished by marks scarified on the face, but Nigeria has only two main divisions. The higher and drier north is Mohammedan (illustration, cover), and the Hausa language is spoken. Christianity is gaining ground in the rainy, idol-worshiping south. The differences are more geographical than religious or linguistic.

Kano a Beautiful City of Mud Walls

Unlike the tropical low-lying tsetse-ridden south, reaching to within less than 300 miles of the Equator, the north has a more temperate climate. Cattle graze on grassy ranges between 2,000 and 4,000 feet above sea level. Peaks in the central Bauchi highlands rise to almost 6,000 feet (map, page 6).

Kano, age-old city of beautifully decorated mud walls, is a thriving Arab mart. Long rows of mud cells, roofed but without front walls, make up the market house. Some imported goods are displayed, but the products come mostly from local farms and factories—the work of native weavers, tanners, leather workers, dyers, and potters. Plantations produce cotton, sugar cane, and grain. Ivory and leopard skins come from the northeast Lake Chad region, source of salt.

Kano's 80,000 people huddle within the 11-mile-long city walls. Population of Kano Province is two and a half million. The area, though near the edge of the Sahara, is often cooled by a dry wind—the dusty *harmattan*.

The southern metropolis, thatch- and tin-roofed Ibadan, has 318,000 people, the largest city in equatorial Africa. The surrounding rain belt contains oil palm, cocoa, rubber, citrus fruit, banana, and pineapple plantations. The southern Negroes grow sweet potatoes, corn, and cassava in forest clearings, usually at some distance from their villages.

Has Extensive Railway System

Lagos, the capital and chief port, stands on an island off the southwest coast. Its 167,000 people include merchants from Syria, Greece, India, and elsewhere, in addition to British civil servants. Its natives affect queer European adaptations in their dress. They number many fishermen.

Nigeria is far from undeveloped. Cities have water and electric light. The railway system, running inland from Lagos and Port Harcourt (on the Niger delta), gives the country nearly 2,500 miles of transportation. Both lines extend almost to the frontier of French West Africa on the north. The Benue, Niger tributary, is navigable to small steamers across east Nigeria a good part of the year. Nigeria has 30 airfields, more than 3,000 miles of motor road, and many caravan trails.

Export values have totaled $90,000,000 in a year. Production is rep-

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sulphur slowed down the golden flow from Sicily's Porto Empedocle. Increased production of American wines has more recently reduced the market for Sicilian wine imports.

Going to the United States of America was an island-wide ambition realized by thousands of Sicilians each year until United States immigration quotas were restricted. The urge for freedom from oppression has at times stimulated seething that has produced the label for Sicily—"the Ireland of the South."

NOTE: Sicily appears on the National Geographic Society's map of Central Europe and the Mediterranean. Write the Society's headquarters, Washington 6, D. C., for a price list of maps.

For additional information, see "From Africa to the Alps," in the *National Geographic Magazine*, February, 1946; "Sicily Again in the Path of War," September, 1943; and "Italy, from Roman Ruins to Radio," March, 1940.

And in the GEOGRAPHIC SCHOOL BULLETINS, March 6, 1944, see "Where Are the Yanks? 3. Sicily and Southern Italy"; "Sicily Turns from Battlefield to Base," October 4, 1943; and "The Mediterranean's Sicilian Narrows, Water-Bridge to Europe," March 1, 1943.

R. RAFFIUS

SICILY'S FISHERMEN MEND THEIR NETS ON A NARROW BEACH BELOW BALESTRATE

From the cliff along the Italian island's north coast, the town's cubistic houses look down on the busy workers. In small boats the men go after big tuna. Nets pull the fish to the vessel and men with gaffs drag them aboard. After each trip the all-important nets are inspected for damage.

Water and Minerals Alter Century-Old Utah

"THIS is the place."

A shaft of granite bearing these four words rises at the mouth of Emigration Canyon in Utah's Wasatch Mountains. It marks the spot where, on July 24, 1847, Brigham Young's carriage stood when the Mormon leader, ill with fever after the thousand-mile trek from Illinois, first gazed on the purplish-gray waste of the Salt Lake Valley.

Irrigation and mining have transformed the original scene. Now mountain waters flow lavishly along the gutters of Salt Lake City, and huge mining operations rise in the desert. To remind Americans that a celebration of a century of progress is under way, Utah's 1947 auto license plates carry Young's four-word pronouncement. So does a granite and bronze memorial to be dedicated in Salt Lake City on centenary day.

Irrigation Makes Desert Bloom

A new scenic road follows the route of the 150 weary pioneers into the valley. Pageants, rodeos, and symphony concerts will tell phases of Utah's century in towns through the state from June through September.

On the July day that the leader looked out upon the chosen valley, his colleagues began the plowing that redirected mountain streams across the parched plain. Theirs has been called the first irrigation project of North American settlers. They planted crops, but the crops were not enough. The news of their settlement brought 5,000 more colonists, mostly Mormons, from the east by late 1848.

Gleaming to their west was the Great Salt Lake, roughly 75 miles long and 50 miles wide. It is the largest of several remnants of prehistoric Lake Bonneville, which once covered the entire Great Salt Lake Desert of western Utah.

Combining with the Wasatch Range to make a beautiful setting of Salt Lake Valley, the lake has played a romantic rather than a practical part in the growth of the capital and neighboring centers where seven out of ten Utahans live. Comparatively small amounts of table salt and other commercial salts are taken from the lake's vast store. The capital and other towns all lie five to twenty miles back from the infertile lake shore.

Irrigation waters have gradually transformed arid but fertile range areas into productive farmlands where grains, sugar beets, fruits, and truck crops flourish along with poultry, cattle, and sheep. The new farmlands, in turn, have built communities supported by grain and sugar mills, canneries, creameries, and packing plants.

Minerals Make Industry

Most of the farm transformation has occurred since Utah became the Union's 45th state, in 1896. Even today, only one-fortieth of the state land benefits from irrigation. Such new undertakings as the Central Utah Reclamation Project, damming the Green River in the northeast corner of the state, will provide power for future industry and make farm acreage of vast additional areas of desert.

Minerals have transformed Utah. They thrust the state into front-rank industrial importance during World War II. Before that, they built its railroads, centered at Ogden, 30 miles north of Salt Lake City.

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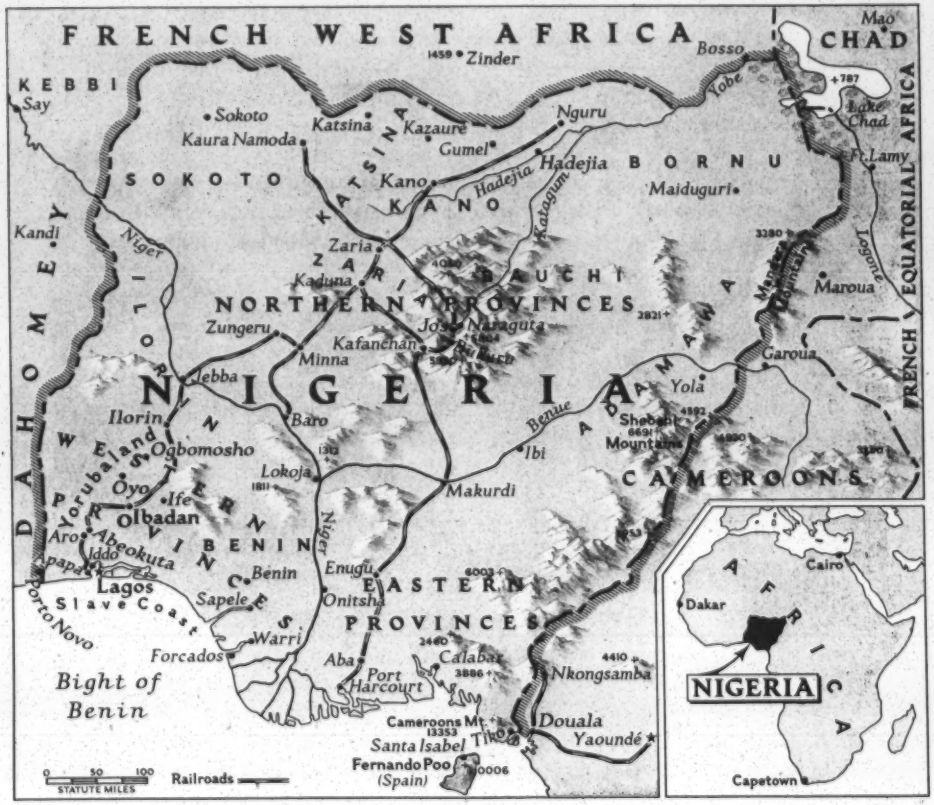
resented by such annual outputs as 14,000 tons of tin ore; 25,000 ounces of gold ore; 4,000 tons of rubber. Oil from palms in southern Nigeria annually adds about 140,000 tons to exports. Coal mines 150 miles from Port Harcourt may yield some 350,000 tons in a year.

Nigeria is rightfully called the "Colony and Protectorate of Nigeria." For administrative purposes the mandated slice of Cameroons is considered a part of the country. The total Nigerian population is about twice that of the Union of South Africa.

NOTE: Nigeria is shown on the Society's map of Africa.

For additional information, see "Nigeria: From the Bight of Benin to Africa's Desert Sands," in the *National Geographic Magazine* for May, 1944*; "Trans-Africa Safari," September, 1938*; and "Three-Wheeling Through Africa," January, 1934. (*Issues marked with an asterisk are included in a special list of Magazines available to teachers in packets of ten for $1.00.*)



FROM THE SLAVE COAST TO LAKE CHAD, NIGERIA CUTS A SQUARISH SWATH FROM AFRICA

In the Lagos and Benin areas, in the southwest, centered the slave trade initiated by the Portuguese in the 15th century. North from the cosmopolitan capital the railroad goes through Yorubaland where Sudanese-like natives worship such natural objects as mountains, trees, and pythons. Ilorin is the gateway to the Mohammedan north. The faithful look to Sokoto, in the northwest, as their holy city. Zaria province grows cotton. South from the market city of Kano lies Jos, a resort 3,900 feet above sea level. Tin mined near here reaches Port Harcourt by rail through the Eastern Provinces.

American Rice Helps Feed Hungry World

IN these days when war's wreckage still litters the landscape and the fields and farms of many countries have not yet recovered their normal productivity, the grain crop of only a fraction of the world must be stretched to feed all the world's people.

To help meet this need, the United States is growing more rice than ever before in its history.

Louisiana, Texas, Arkansas, and California, which raise virtually the entire American crop, have grown enough rice for our own use and also a surplus of millions of bushels for export to hungry lands overseas. A record yield of 71,520,000 bushels was produced in 1946. Nearly a third of this is being exported.

Large American Crop Small Compared to World's Rice Yield

The total is small when compared with American corn, wheat, and oats crops. It is enough, however, to make rice big business in the Gulf and Pacific coastal areas suited to its growth. Rice needs warm weather and a good deal of water. It is generally grown on level land, flooded so that the roots are under water (illustration, page 10). However, some varieties are sown on hillsides and are not irrigated.

Also, when compared to the world's rice crop of prewar years, the American figure is small. It is about one per cent of the seven-billion-bushel total.

The countries of southeast Asia normally grow 97 per cent of the world's rice, with Burma, Siam, and French Indochina producing surpluses needed by China and India. Although the United States' surplus can be but a drop in the bucket to rice-eating Asia, any part of it is a welcome drop in a period when the dislocations of war have cut the Orient's rice supply nearly one-fifth.

American rice-milling centers in the four producing states process the grain by machinery. This method makes it possible for American rice growers to compete with those of the Orient where low wages prevail. These mills are surrounded by vast level fields well supplied with fresh water and diked for flooding the growing plants. The 1946 crop grew on 1,575,000 acres of such fields. Ten million additional acres along the Gulf Coast are suitable for rice growing, and can be planted to the useful grain when needed.

South Carolina Was First American Rice-Producer

Harrowing, seeding, wet-harvesting, steaming to drive vitamins from the hulls into the kernels, drying, husking, pearling, polishing, and packaging are all done by machine. Besides its many and well-known table uses, the grain is used in making starch, cosmetics, and beer; and rice bran is a base for livestock feeds.

First grown about 1685 in the garden of the colonial governor at Charleston, South Carolina, rice had become an important export grain in the Carolinas and Georgia by Revolutionary times.

Gradually the cultivation of rice waned on the Atlantic Coast and developed on the Gulf Coast, until in 1889 Louisiana took over the pro-

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Surface mines in Bingham Canyon (illustration, below) have yielded 3,000,000 tons of copper since 1907, with gold and silver as by-products. These, plus lead and zinc, have come from Wasatch diggings since as early as 1870. The state is consistently among the leaders in supplying these five important metals.

World War II gave Utah a big steel mill at Geneva, on the shore of Utah Lake. It promises to make extensive peacetime use of the state's fabulous reserves of iron ore and coal. Petroleum for Utah's second century seeps from mountains of shale in the eastern part of the state.

High among Utah's established industries is travel. Its permanence is assured by such renowned scenic marvels as Zion and Bryce Canyon national parks and Rainbow Bridge and Arches national monuments—all in the southern half of the state.

NOTE: Utah is shown on the Society's map of The Southwestern United States.

See also, "Flaming Cliffs of Monument Valley," in the *National Geographic Magazine*, October, 1945*; "Utah, Carved by Winds and Waters," May, 1936; and "Encircling Navajo Mountain with a Pack-Train," February, 1923.

And in the GEOGRAPHIC SCHOOL BULLETINS, November 25, 1946, see "Bryce Canyon, Where 'Rocks Stand Like Men'," and "Zion, Where Single Rocks Dwarf Skyscrapers," November 18, 1946.

RICHARD H. STEWART

LIKE A TERRACED INCA MOUNTAINSIDE, BINGHAM CANYON'S OPEN-PIT COPPER MINE HAS TRANSFORMED NATURE

In seven-ton bites, the shovels have moved a mountain and left a giant's amphitheater 20 miles southwest of Salt Lake City. The terraces average 70 feet high. Low-grade copper is extracted.

Easter Island's Images Puzzle Scientists

THE Chilean Government, if it goes through with plans to build on Easter Island (Rapa Nui) an air base for the proposed Chile-Australia route, may make it possible for travelers to view the remote island's amazing statues. These mysterious figures have puzzled scientists for more than two centuries and have raised many archeological questions.

What is the significance of the huge graven images (illustration, page 12) that gaze dejectedly over the grassy, volcanic island? When were they carved? And by whom?

Far Removed from Other Land

How did the primitive sculptors raise the 50-ton figures to an upright position? Why did they suddenly abandon their work, leaving nearly 150 unfinished statues in the quarries? Where did they go? Are today's 250 islanders their descendants, or later immigrants?

Easter Island's Polynesian inhabitants have few legends concerning the images or their own background. Their home is far from other land. The mainland of Chile lies 2,200 miles east. Pitcairn Island, of *Mutiny on the Bounty* fame, is 1,200 miles west.

In appearance Easter is unlike the hot, palm-fringed islands farther west and north. Grass covers even the rocky summits of extinct volcanoes, highest of which rises 1,700 feet above the sea. There is not a tree on the island. Native boats were put together like jigsaw puzzles from driftwood found on the shores. The first timber houses resulted from a cargo of lumber salvaged from a wrecked freighter.

Simple, fun-loving, and easygoing, the natives live mostly in the village of Hanga Roa, on Cook Bay, the island's best harbor. They enjoy an almost perfect climate, in the path of the southeast trade winds. They grow sweet potatoes, bananas, and sugar cane.

The Egg and "Ao"

Rain sinks into the porous ground and sometimes forms underground channels from which it flows into the sea below high-water mark. When the islanders find these outpourings, they collect the fresh water before it mingles with the brine of the sea. This feat was a puzzle to early voyagers, who did not know the source of the water. They reported that the islanders were able to drink sea water without harm.

Formerly the natives selected a chief each year by means of a competition. A number of representatives from the *Ao*, or ruling clan, were the candidates, although they could be represented by younger proxies. The competition was an egg hunt on a tiny isle just off Easter. At the beginning of the laying season of the sooty tern, the sacred bird of the islanders, the candidates swam out to the islet.

They remained for several days or a week—until the first rare egg was found. Then the victor returned to a great feast. Chief for a year, he proudly exhibited the egg of fortune outside his house.

Once or twice a year, a Chilean vessel puts into Cook Bay to exchange needed supplies for sheep, cattle, and hogs. Sheep raising is the largest industry. There are many horses and dogs. The principal pests are flies,

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duction leadership which it still holds. Cuba normally is the United States' No. 1 export rice customer.

NOTE: Rice-growing areas of the United States may be located on the Society's map of the Southeastern United States, and the map of The United States.

For additional information, see "United States Rice Crop Tops Records," in the GEOGRAPHIC SCHOOL BULLETINS for November 15, 1943.

MAYNARD OWEN WILLIAMS

NOT WITH ALL THE RICE IN CHINA HAS THAT COUNTRY ENOUGH FOR ITS OWN PEOPLE

Ankle deep in the flooded field, this Chinese farmer guides the crude wooden plow behind his plodding water buffalo. Although teams such as this are cultivating similar rice fields over many square miles of China, the millions of bushels raised are not enough to supply the nation. The domestic crop must be supplemented with enormous quantities from abroad. After perhaps two crops of rice, the same land may be used to grow vegetables. In the background huddle mud-brick houses with characteristic tile roofs.

SHEEPSKINS FOR JUNE GRADS MAKE MILLION-DOLLAR BUSINESS

Diplomas awarded annually at commencements cost schools and colleges throughout the United States more than $1,000,000. The value of the "sheepskins" varies with the workmanship and materials used. Most colleges continue to award parchment diplomas, a sheepskin product coming to the United States mostly from England. One factory in Hampshire, England, is said to have operated for a thousand years.

The exact origin of certificates for educational attainment is uncertain. European diplomas go back several centuries. It is thought they originated as licenses for the practice of a profession. Harvard College held its first commencement in 1642. Yale's first diploma was presented in 1702. Photographs of diplomas awarded by Yale more than two centuries ago indicate they were done by hand.

The growing importance of the diploma led to engraved certificates of distinctive design to lessen possibilities of forgery. Some institutions have retained the same design for decades, carefully guarding the engraving plates.

Many foreign diplomas are less formal, less impersonal. Some record such details as the date and place of the holder's birth, father's name and occupation, the student's photograph, his examination grades, and even comment on class conduct.

Many schools in the United States have recently introduced smaller diplomas, some enclosed in leather folders. Strictly speaking, the rolled diploma is not a "diploma," as the word derives from the Greek meaning "a paper folded double."

mosquitoes, and big green cockroaches.

Easter Island measures a little less than 30 miles in circumference. It probably had 5,000 to 6,000 inhabitants at one time. When the Dutch Admiral, Jacob Roggeveen, discovered the gray-green mass on Easter Day, 1722, its population was about half that figure. In 1862, Peruvian pirates kidnapped 1,000 islanders to slave on the guano isles of Peru. Chile formally took possession in 1888.

NOTE: Easter Island (Rapa Nui) is shown on the Society's map of the Pacific Ocean, on which it also appears in a large-scale inset.

See also "Great Stone Faces of Easter Island," in the *National Geographic Magazine* for November, 1944*; and "The Mystery of Easter Island," December, 1921.

MARTINI

FARAWAY SORROWFUL HANG-DOG EXPRESSIONS HAUNT THE RARE VISITOR ON EASTER ISLAND

Narrow-browed, deep-eyed, large-nosed, thin-lipped, rope-eared, and thick-necked, 260 of these stylized images dot the Pacific isle. Some are 30 feet high. Forgotten sculptors carved them from hardened volcanic ash, so easily chiseled that some figures may have been roughed out in 15 days.